Chapter 17

Tools of Monetary Policy

The Market for Reserves and the Federal Funds Rate

- *federal funds rate* (i_{ff}) = interest rate on overnight loans of reserves from one bank to another

- Demand curve for reserves
  - reserves are composed of required reserves and excess reserves:

    $R = RR + ER$

  - if $i \downarrow$, the opportunity cost of excess reserves falls, hence $ER \uparrow$
  - thus, the demand curve slopes down

The Market for Reserves and the Fed Funds Rate

- ◼ Supply curve for reserves
  - ◼ banks can get loans from the nonborrowed reserves R^n of other banks or from the Fed (discount loans DL):

    $R^s = R^n + DL$

  - ◼ if i_{ff} is below i_d (the interest rate charged by the Fed), then there is no discount borrowing:
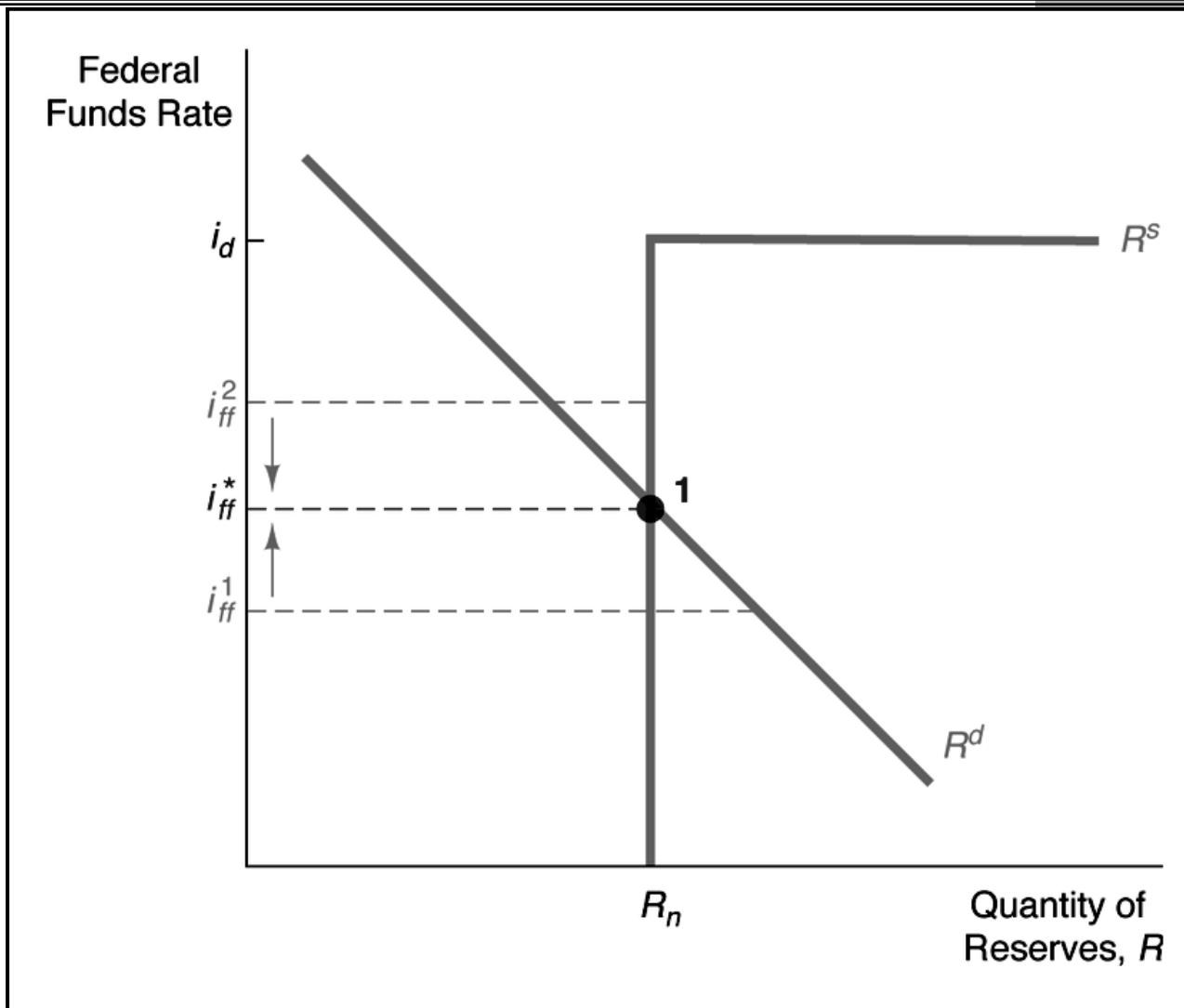
    $R^s = R^n$

  - ◼ also, the supply curve is flat (infinitely elastic) at i_d: if $i_{ff} > i_{ff}$, banks get only discount loans
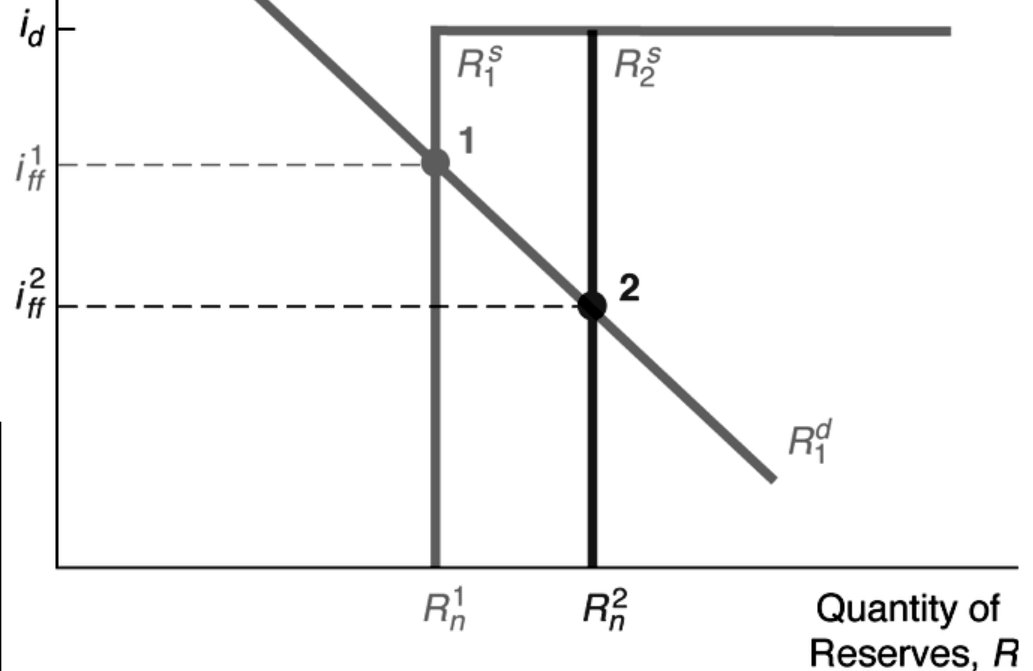- ◼ Market equilibrium
  - ◼ $R^d = R^s$ at i^*_{ff}

Supply and Demand for Reserves

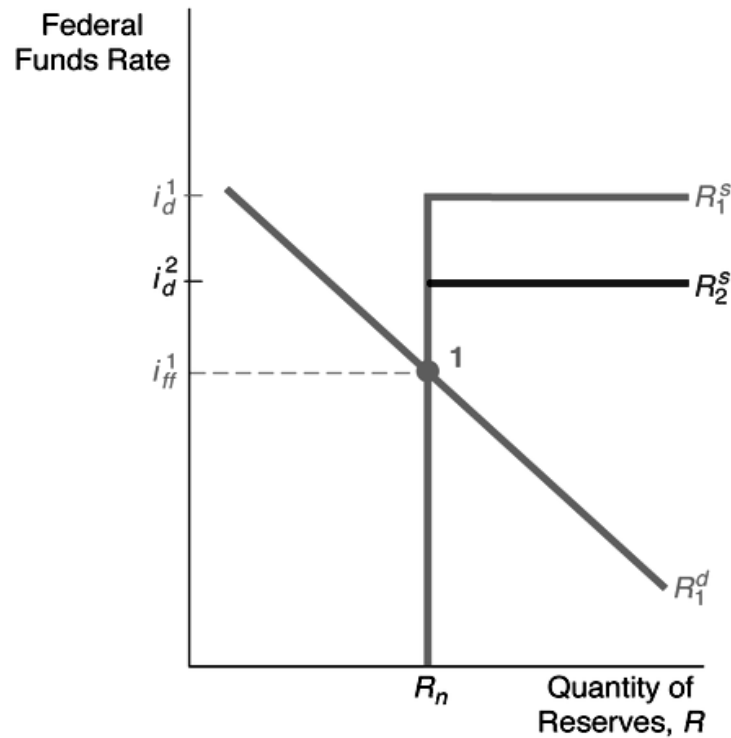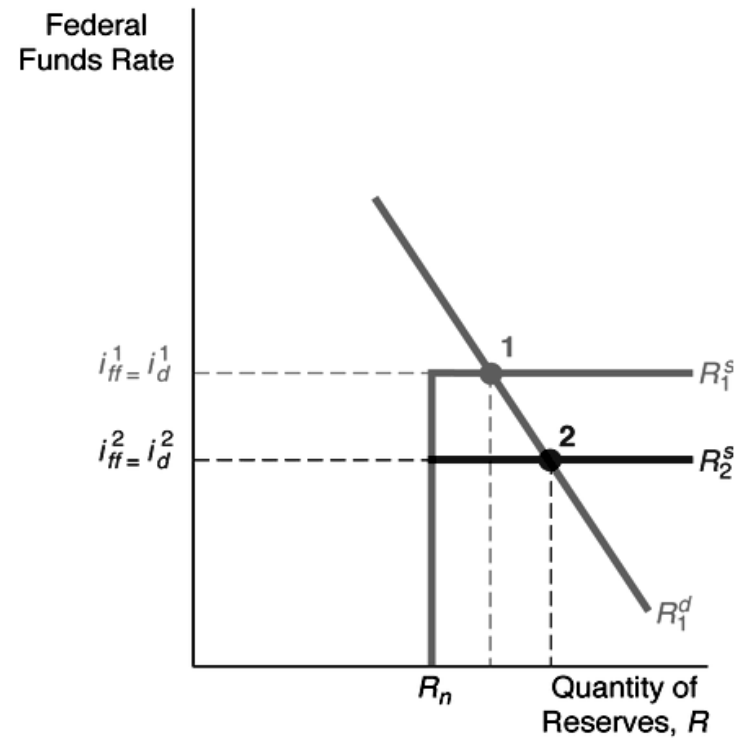# Response to Open Market Operations

Open Market Purchase

Nonborrowed reserves, R^n, ↑ and shifts supply curve to right R^s_2: i ↓ to i^2_{ff}

Response to a Change in the Discount Rate

Federal Funds Rate

R_1^s

R_2^s

i_d^1

i_d^2

i_{ff}^1

1

R_1^d

R_n Quantity of Reserves, R

(a) No discount lending

Federal Funds Rate

R_1^s

R_2^s

$i_{ff}^1 = i_d^1$

$i_{ff}^2 = i_d^2$

1

2

R_1^d

R_n Quantity of Reserves, R
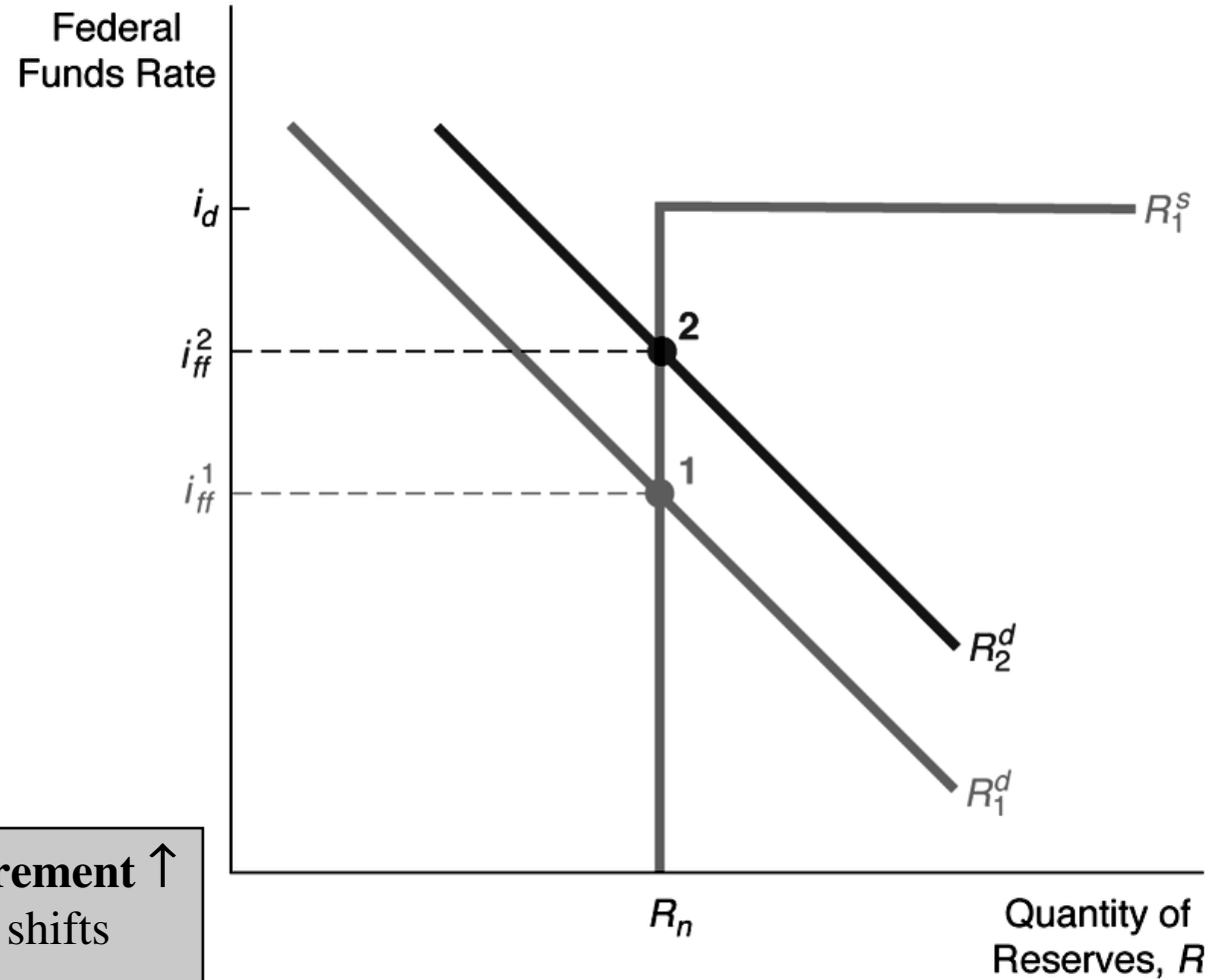
(b) Some discount lending

(a) No discount lending
Lower Discount Rate
Horizontal to section ↓ and supply curve just shortens, i_{ff} stays same

(b) Some discount lending
Lower Discount Rate
Horizontal section ↓, i_{ff} ↓ to $i_{ff}^2 = i_d^2$

Response to Change in Required Reserves

Federal Funds Rate

i_d

i_{ff}^2 --- • 2

i_{ff}^1 --- • 1

R_1^s

R_2^d

R_1^d

R_n

Quantity of Reserves, R

Required Reserve Requirement $\uparrow$
Demand for reserves $\uparrow$, R^s shifts
right and i_{ff} $\uparrow$ to i_{ff}^2

Open Market Operations

- *open market purchases*: R $\uparrow$ and MB $\uparrow \Rightarrow$ M^s $\uparrow \Rightarrow$ short-term i $\downarrow$

- *open market sales*: R $\downarrow$ and MB $\downarrow \Rightarrow$ M^s $\downarrow \Rightarrow$ short-term i $\uparrow$

- two types of operations:
  - dynamic – meant to change the monetary base
  - defensive – meant to offset other factors affecting the monetary base (typically uses repos)

- advantages of open market operations
  - Fed has complete control
  - flexible and precise
  - easily reversed
  - implemented quickly

Discount Loans

- *discount window* = Fed allowing banks to take discount loans

- Types of discount loans
  - *primary credit* = backup source of funds for healthy banks (the interest rate i_d, called *discount rate*, is usually 100 basis points=1% higher than i_{ff})
  - *secondary credit* – given to banks in financial trouble (interest rate = i_d + 0.5%)
  - *seasonal credit* – given to small banks in vacation or agricultural areas

Discount Loans (cont.)

- Lender of Last Resort function
  - to prevent banking panics, since the FDIC fund might not be big enough and large deposits are not fully covered (for example, the case of Continental Illinois
  - to prevent nonbank financial panics (for example, the 1987 stock market crash, or the September 11 terrorist incident)
  - but this also causes moral hazard problems

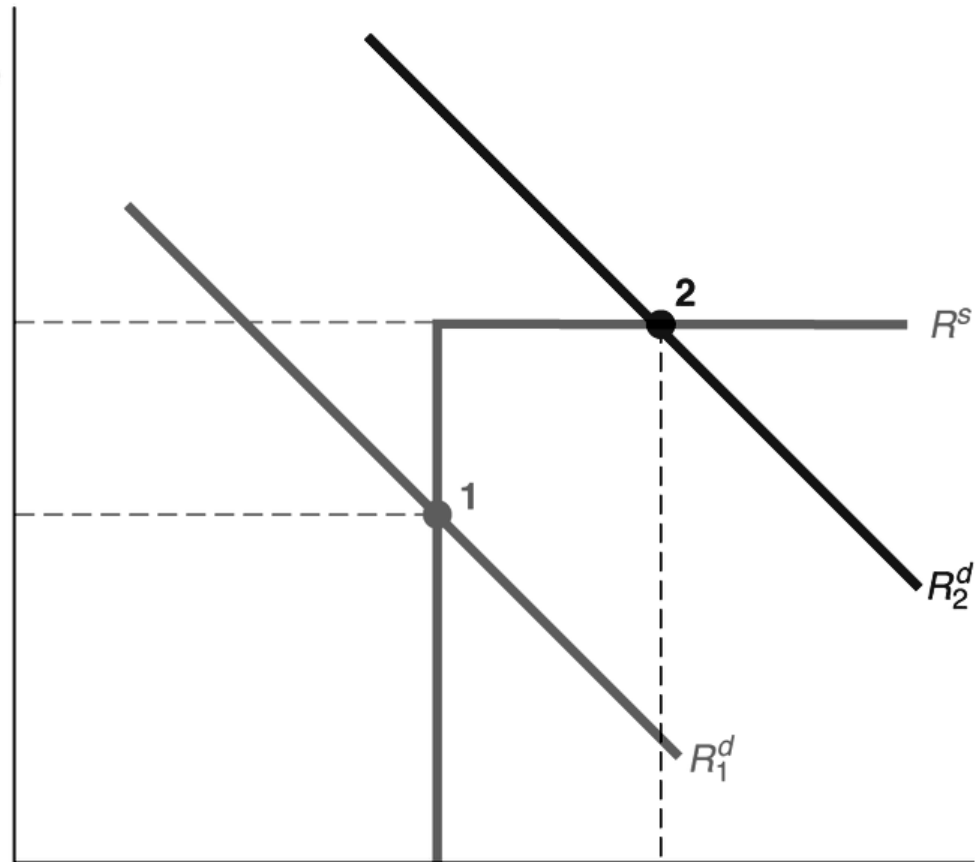# How Primary Credit Facility Puts a Ceiling on i_{ff}

Federal Funds Rate

$i_{ff}^2 = i_d$

2

R^s

i_{ff}^T

1

R_2^d

R_1^d

R_n ⏜ DL_2

Quantity of Reserves, R

Rightward shift of R^s to R^s_2 moves equilibrium to point 2 where $i^2_{ff} = i_d$ and discount lending rises from zero to DL_2

Discount Policy

- Advantages
  - role of lender of last resort

- Disadvantages
  - confusion interpreting discount rate changes
  - fluctuations in discount loans cause unintended fluctuations in money supply
  - not fully controlled by Fed

Reserve Requirements

- **Advantages**
  - powerful effect (both on reserves/money supply and on the federal funds rate)

- **Disadvantages**
  - small changes have very large effect on money supply
  - raising them causes liquidity problems for banks
  - frequent changes cause uncertainty for banks
  - they are effectively a tax on banks

Channel/Corridor System for Setting Interest Rates in Other Countries

- some countries (Canada, Australia, New Zeeland) eliminated required reserves, but the central bank still has control over overnight interbank interest rates
- the channel-corridor system at work:
  - the central bank sets up a lending facility: stands ready to lend overnight any amount at the *lombard rate* i_l (usually 0.25% higher than the target rate)
  - the central bank pays a fixed interest rate i_r (usually 0.25% lower than target rate) on any reserves banks decide to keep at the central bank
- thus, the federal funds rate i_{ff} lies between i_r and i_l

Channel/Corridor System for Setting Interest Rates in Other Countries (cont.)

In the channel/corridor system standing facilities result in a step function supply curve, R^s. If demand curve shifts between R^d_1 and R^d_2, i_{ff} always remains between i^r and i^l